

## Claims

1. A pharmaceutical preparation comprising, as an active ingredient, a virus envelope vector having a chemotherapeutic agent incorporated therein.

2. The pharmaceutical preparation according to claim 1, wherein the chemotherapeutic agent is a cancerocidal agent, an anticancer agent, or an antitumor agent.

3. The pharmaceutical preparation according to claim 1 or 2, wherein the chemotherapeutic agent is at least one member selected from the group consisting of bleomycin and derivatives thereof, anthraquinone-based cancerocidal agents, mitomycin and derivatives thereof, actinomycin and derivatives thereof, taxane derivatives, camptothecin and derivatives thereof, cisplatin and derivatives thereof, staurosporine and derivatives thereof, vincristine, streptozotocin, 5-fluorouracil (5-FU) and derivatives thereof, viralbicin, dolastatin, and pharmacologically acceptable salts thereof.

4. The pharmaceutical preparation according to any one of claims 1 to 3, wherein bleomycin and derivatives thereof are bleomycin or pharmacologically acceptable salt thereof or peplomycin or pharmacologically acceptable salts thereof.

5. The pharmaceutical preparation according to any one of claims 1 to 4, wherein bleomycin and derivative thereof are bleomycin hydrochloride, bleomycin sulfate and peplomycin sulfate.

6. The pharmaceutical preparation according to any one of claims 1 to 5, wherein the virus is derived from a virus belonging to a family selected from the group consisting of the retrovirus family, togavirus family, coronavirus family, flavivirus family, paramyxovirus family, orthomyxovirus family, bunyavirus family, rhabdovirus family, poxvirus family, herpes virus family, baculovirus family and hepadnavirus family.

7. The pharmaceutical preparation according to any one of claims 1 to 6, wherein the virus is a member selected from the group consisting of Sendai virus, retrovirus, adenovirus, adeno-associated virus, herpes virus, vaccinia virus, poxvirus and influenza virus.

8. The pharmaceutical preparation according to any one of claims 1 to 7, wherein the chemotherapeutic agent is at least one member selected from the group consisting of bleomycin hydrochloride, bleomycin sulfate and peplomycin sulfate, and the virus is Sendai virus.

9. The pharmaceutical preparation according to any one of claims 1 to 8, which is an injection.

10. The pharmaceutical preparation according to any one of claims 1 to 9, wherein a surfactant is used in the step of incorporating the chemotherapeutic agent into the virus envelope vector.

11. The pharmaceutical preparation according to claim 10, wherein the surfactant is one member selected from the group consisting of Triton X100, deoxycholic acid and salts thereof,

and cholic acid and salts thereof.

12. The pharmaceutical preparation according to any one of claims 1 to 11, which is a therapeutic agent for solid cancer.

13. The pharmaceutical preparation according to any one of claims 1 to 12, wherein the solid tumor is one member selected from the group consisting of lung cancer, breast cancer, digestive organ cancer, head and neck cancer, gynecologic cancer, urologic cancers, soft tissue and bone sarcoma, malignant lymphoma and cancer of unknown primary.

14. The pharmaceutical preparation according to claim 13, wherein the digestive organ cancer is one member selected from the group consisting of stomach cancer, colon cancer and esophagus cancer.

15. The pharmaceutical preparation according to claim 13, wherein the head and neck cancer is one member selected from the group consisting of upper jaw cancer, tongue cancer, lip cancer, pharynx cancer, larynx cancer and oral cavity cancer.

16. The pharmaceutical preparation according to claim 13, wherein the gynecologic cancer is one member selected from the group consisting of uterus cancer, ovarian cancer and uterine cervical cancer.

17. The pharmaceutical preparation according to claim 13, wherein the urologic cancers is prostate cancer.

18. A method of treating a cancer, which comprises using a chemotherapeutic agent-incorporated virus envelope vector in combination with a platinum complex and/or an antimetabolite.

19. The method of treating a cancer according to claim 18, wherein the platinum complex is one member selected from the group consisting of cisplatin, carboplatin, Paraplatin and nedaplatin.

20. The method of treating a cancer according to claim 18, wherein the antimetabolite is one member selected from the group consisting of 6-mercaptopurine riboside, enocitabin, gemcitabine HCl, carmofur, cytarabine, cytarabine ocfosfate, tegafur, tegafur-uracil, tegafur-gimeracil-oteracil-potassium, doxifluridine, hydroxycarbamide, fluorouracil, methotrexate, mercaptopurine and fludarabine phosphate.

21. A method of treating a cancer, which comprises using a chemotherapeutic agent-incorporated virus envelope vector in combination with cisplatin and/or fluorouracil.

22. A method of treating a cancer, which comprises using a chemotherapeutic agent-incorporated virus envelope vector in combination with cisplatin and/or fluorouracil, and subsequent irradiation with radiations.

23. A method of treating a solid cancer, which comprises using a bleomycin- or its pharmacologically acceptable salt-incorporated Sendai virus envelope vector in combination with cisplatin and/or fluorouracil, and subsequent irradiation with radiations.

## Abstract

The present invention provides a pharmaceutical preparation used for transfecting a chemotherapeutic agent, preferably an anticancer agent by a virus envelope vector into a cell or living organism. The pharmaceutical preparation comprises, as an active ingredient, a virus envelope vector having a chemotherapeutic agent incorporated therein. The anticancer agent includes, for example, bleomycin and derivatives thereof, anthraquinone-based cancerocidal agents, mitomycin and derivatives thereof, actinomycin and derivatives thereof, taxane derivatives, camptothecin and derivatives thereof, cisplatin and derivatives thereof, staurosporine and derivatives thereof, vincristine, streptozotocin, 5-fluorouracil (5-FU) and derivatives thereof, viralbicin, dolastatin, and pharmacologically acceptable salts thereof. The virus includes, for example, Sendai virus, retrovirus, adenovirus, adeno-associated virus, herpes virus, vaccinia virus, poxvirus, influenza virus etc.